



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

27045 7590 11/16/2010

ERICSSON INC.
6300 LEGACY DRIVE
M/S EVR 1-C-11
PLANO, TX 75024

EXAMINER

JAMA, ISAAK R

ART UNIT

PAPER NUMBER

2617

DATE MAILED: 11/16/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/596,683

06/21/2006

Peter Larsson

P18752-US1

9439

TITLE OF INVENTION: METHOD AND SYSTEM OF RADIO COMMUNICATIONS OF TRAFFIC WITH DIFFERENT CHARACTERISTICS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	02/16/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

27045 7590 11/16/2010

ERICSSON INC.
6300 LEGACY DRIVE
M/S EVR 1-C-11
PLANO, TX 75024

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/596,683 06/21/2006 Peter Larsson P18752-US1 9439

TITLE OF INVENTION: METHOD AND SYSTEM OF RADIO COMMUNICATIONS OF TRAFFIC WITH DIFFERENT CHARACTERISTICS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
-------------	--------------	---------------	---------------------	----------------------	------------------	----------

nonprovisional NO \$1510 \$300 \$0 \$1810 02/16/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
----------	----------	----------------

JAMA, ISAAK R 2617 370-330000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,683	06/21/2006	Peter Larsson	P18752-US1	9439
27045	7590	11/16/2010	EXAMINER	
ERICSSON INC. 6300 LEGACY DRIVE M/S EVR 1-C-11 PLANO, TX 75024			JAMA, ISAAK R	
			ART UNIT	PAPER NUMBER
			2617	
DATE MAILED: 11/16/2010				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 548 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 548 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/596,683

Examiner

ISAAK R. JAMA

Applicant(s)

LARSSON ET AL.

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/07/2010.
2. ☒ The allowed claim(s) is/are 48, 50 and 52, now renumbered 1-3.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 07/21/2010; 09/07/2010
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

DETAILED ACTION

EXAMINER'S AMENDMENT

1. The application has been amended as follows: An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with William J. Tucker (Reg. # 41,356) on 11/03/2010.

2. The application has been amended as shown in the "Listing of Claims" below and is summarized as follows:

3. Independent claims 48 and 52 have been amended.

4. Dependent claim 50 which is dependent on independent claim 48 remains unamended.

Listing of the claims:

48. (Currently Amended) A cellular radio communications system comprising: a first radio communications equipment, located within a first cell, for communicating traffic with different characteristics, the traffic being divided into two or more categories including conventional communications and opportunistic communications which, transfer with different characteristics, wherein conventional communications comprise communications in which transmission power for various channels is adjusted to achieve at least minimum quality requirements and wherein opportunistic

Art Unit: 2617

communications use scheduling and rate control to transfer traffic, the first radio communications equipment further comprising processing circuitry for allocating traffic transmissions that use conventional communications to physically wholly or partially separated channels to the traffic transmissions that use opportunistic communications; a second radio communications equipment, located within a second cell, for communicating traffic with different characteristics, the traffic being divided into two or more categories including conventional communications and opportunistic communications which transfer with different characteristics, wherein conventional communications comprise communications in which transmission power for various channels is adjusted to achieve at least minimum quality requirements and wherein opportunistic communications use scheduling and rate control to transfer traffic, the second radio communications equipment further comprising processing circuitry for allocating traffic transmissions that use conventional communications to physically wholly or partially separated channels to the traffic transmissions that use opportunistic communications; and processing circuitry configured to identify channels within the first cell and the second cell, analyze the identified channels to determine overlapping time slots, frequency slots or time-frequency slots that contain the different types of traffic in the identified channels, and allocate ~~for allocating~~ traffic of different characteristics of different cells by which allocation interference between differently characterized communications of neighboring cells is minimized, wherein the processing circuitry allocates the traffic of different characteristics of the different cells by minimizing a number of the time slots, the frequency slots or the time-frequency slots which overlap

Art Unit: 2617

and contain different types of ~~communications~~ traffic that are transmitted from the first and second radio communications equipment in the different cells.

50. (Previously Presented) (Previously Presented) The radio communications system according to claim 48 comprising the processing circuitry maximizing signal to interference ratio or carrier to interference ratio of time slots, frequency slots or time-frequency slots, if any, of communications with different characteristics in the different cells.

52. (Currently Amended) A controller that interfaces with a first radio communications equipment and a second radio communications equipment wherein: the first radio communications equipment, located within a first cell, for communicating traffic with different characteristics, the traffic being divided into two or more categories including conventional communications and opportunistic communications which transfer with different characteristics, wherein conventional communications comprise communications in which transmission power for various channels is adjusted to achieve at least minimum quality requirements and wherein opportunistic communications use scheduling and rate control to transfer traffic, the first radio communications equipment further comprising processing circuitry for allocating traffic transmissions that use conventional communications to physically wholly or partially separated channels to the traffic transmissions that use opportunistic communications; and the second radio communications equipment, located within a second cell, for communicating traffic with different characteristics, the traffic being divided into two or more categories including conventional communications and opportunistic

Art Unit: 2617

communications which transfer with different characteristics, wherein conventional communications comprise communications in which transmission power for various channels is adjusted to achieve at least minimum quality requirements and wherein opportunistic communications use scheduling and rate control to transfer traffic, the second radio communications equipment further comprising processing circuitry for allocating traffic transmissions that use conventional communications to physically wholly or partially separated channels to the traffic transmissions that use opportunistic communications, the controller comprising: processing circuitry configured to identify channels within the first cell and the second cell, analyze the identified channels to determine overlapping time slots, frequency slots or time-frequency slots that contain the different types of traffic in the identified channels, and allocate ~~for allocating~~ traffic of different characteristics of different cells by which allocation interference between differently characterized communications of neighboring cells is minimized, wherein the processing circuitry allocates the traffic of different characteristics of the different cells by minimizing a number of the time slots, the frequency slots or the time-frequency slots which overlap and contain different types of ~~communications~~ traffic that are transmitted from the first and second radio communications equipment in the different cells.

Allowable Subject Matter

5. Claims 48, 50 and 52 are allowed.

Art Unit: 2617

6. The following is an examiner's statement of reasons for allowance: The closest prior art reference U.S. Patent Number 6,347,091 (Wallentin et al.) discloses a method and apparatus for dynamically adapting a connection state in a mobile communication system, whereby the amount packet data transmitted is determined, compared to a threshold amount, and if the packet data is less or equal to the threshold, determining whether the packet data amount is increasing or decreasing, and allocating the packet data connection to a shared type of radio channel. But Wallentin does not teach or even suggest allocating traffic transmissions that use conventional communications to physically wholly or partially separated channels to the traffic transmissions that use opportunistic communications, and processing circuitry configured to identify channels within the first cell and the second cell, analyze the identified channels to determine overlapping time slots, frequency slots or time-frequency slots that contain the different types of traffic in the identified channels. Thus, the prior art made of record and relied upon by the examiner in the prosecution of this Application, fails or even suggest "A system and a controller that interfaces with a first radio communications equipment and a second radio communications equipment wherein: the first radio communications equipment, located within a first cell, for communicating traffic with different characteristics, the traffic being divided into two or more categories including conventional communications and opportunistic communications which transfer with different characteristics, wherein conventional communications comprise communications in which transmission power for various channels is adjusted to achieve at least

Art Unit: 2617

minimum quality requirements and wherein opportunistic communications use scheduling and rate control to transfer traffic, the first radio communications equipment further comprising processing circuitry for allocating traffic transmissions that use conventional communications to physically wholly or partially separated channels to the traffic transmissions that use opportunistic communications; and the second radio communications equipment, located within a second cell, for communicating traffic with different characteristics, the traffic being divided into two or more categories including conventional communications and opportunistic communications which transfer with different characteristics, wherein conventional communications comprise communications in which transmission power for various channels is adjusted to achieve at least minimum quality requirements and wherein opportunistic communications use scheduling and rate control to transfer traffic, the second radio communications equipment further comprising processing circuitry for allocating traffic transmissions that use conventional communications to physically wholly or partially separated channels to the traffic transmissions that use opportunistic communications, the controller comprising: processing circuitry configured to identify channels within the first cell and the second cell, analyze the identified channels to determine overlapping time slots, frequency slots or time-frequency slots that contain the different types of traffic in the identified channels, and allocate traffic of different characteristics of different cells by which allocation interference between differently characterized communications of neighboring cells is minimized, wherein the processing circuitry allocates the traffic of different

Art Unit: 2617

characteristics of the different cells by minimizing a number of the time slots, the frequency slots or the time-frequency slots which overlap and contain different types of traffic that are transmitted from the first and second radio communications equipment in the different cells”, as recited by independent claims 48 and 52.

7. Dependent claim 50 depends on allowed base claims 48, hence, it is also allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ISAAK R. JAMA whose telephone number is (571)270-5887. The examiner can normally be reached on Monday-Thursday; 4-10.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/596,683
Art Unit: 2617

Page 9

/IRJ/

/NICK CORSARO/
Supervisory Patent Examiner, Art Unit 2617